

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion is respectfully requested.

Claims 1-21 are currently pending in the application; Claims 1-5, 7-9, 11-16 and 18-20 are amended by the present amendment. Support for amended Claims 1-5, 7-9, 11-16 and 18-20 can be found in the original specification, claims and drawings.¹ The claims have also been amended to avoid interpretation under 35 U.S.C. § 112, sixth paragraph. Thus, no new matter is presented.

In the outstanding Official Action, Claims 1-21 were rejected under 35 U.S.C. § 103(a) as unpatentable over Hoole (U.S. Patent No. 6,480,552, hereinafter "Hoole") in view of Farber (U.S. Patent No. 5,969,837, hereinafter "Farber").

By way of background, conventional mobile communication systems include a plurality of wireless base stations and a control station for controlling the wireless base stations. These wireless base stations and the control station are connected using switching apparatuses and wireless and/or optical fiber circuits. In order to transmit signals via the optical or wireless transmission part, the switching apparatus must convert a signal into a signal which is suitable for the specified transmission medium. Thus, it is necessary to add or change the radio transceiver unit (RTRU) or the optical transceiver unit (OTRU) in a conventional switching apparatus when the transmission medium is added or changed. This configuration makes it difficult to dynamically construct a network.

Claim 1 relates to a mobile communication system including a plurality of base stations, a control station which controls the base stations and switching apparatuses each of which is a part of one of the base stations or the control station. The switching apparatuses are connected to each other by a wireless circuit or an optical fiber circuit. The transmission

¹ Specification at Figure 2.

switching apparatus includes a modulation part which modulates a first signal into a second signal of a unified transmission form. The optical or wireless signal transmission parts are both able to transmit the signal in unified transmission form. Therefore, no additional RTRU or OTRU are needed because the signal is modulated into a unified transmission form by a modulation part which similarly modulates the signal for transmission by both the optical and fiber transmission parts.

Amended Claim 1 recites, *inter alia* a mobile communication system, said switching apparatus in a sending side comprising:

“...a modulation part configured to modulate a first signal into a second signal of a unified transmission form;
a first switching part configured to switch an output destination of said second signal from said modulation part according to a sending destination of said second signal; and
a wireless signal transmission part configured to send said second signal from said first switching part to a base station or a control station in a receiving side via a wireless circuit;
an optical signal transmission part configured to send said second signal from said first switching part to a base station or a control station in a receiving side via an optical fiber circuit...”

Hoole describes a method of pooling second stations for functional quality and maintenance data in a discrete multi-tone spread spectrum communications system. More specifically, Hoole describes a discrete multi-tone stacked-carrier spread spectrum communication method that is based on frequency domain spreading including multiple location of a base band signal by a set of superimposed, or stacked, complex sinusoid carrier waves.²

Farber describes a multi-system station which forms part of a wireless communication system in which a plurality of wireless network services communicate via an antenna.³ Each

² Hoole at Abstract.

³ Farber at column 3, lines 34-40.

station comprises the base unit (10) which communicates with wireless network services.⁴

The base unit (10) includes an input combiner (12), which combines the various wireless inputs, into the combined output, and provides the signal via respective fiber optic transmitters (14) and fiber optical cables (16) to a plurality of remote units which are located throughout a building.⁵ Essentially Farber is a way to enable the distribution of various microcells for use in an apartment-type environment, as depicted in Figure 1.

Applicants respectfully traverse the rejection of Claim 1 as being obvious over Hoole in view of Farber. The requirements for a *prima facie* case of obviousness are (1) there must be some suggestion or motivation of the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine the reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art reference must teach or suggest all of the claim limitations. It is respectfully submitted that the outstanding Office Action fails to make a *prima facie* case of obviousness, because the prior art references either alone or in combination fail to teach or suggest all the claim limitations. Further, there is no suggestion or motivation to combine the reference teachings.

Amended Claim 1 recites a modulation part configured to modulate a first signal into a second signal of a unified transmission form and transmitting the signal by an optical or wireless transmission part. Hoole describes that distinct spectral and spatial analysis of received signals may be combined in a “unified operation” to extract each user’s signal in a highly bandwidth-efficient multiple access system.⁶ Therefore, Hoole describes that the quality of received signals can be improved by adding extra “spatial dimensions” to the spectral matrices used for calculating the complex weights and multiplying the signals by these “unified spatial/spectral” weights.⁷ However, this “unified operation” is clearly in

⁴ Farber at column 3, lines 43-50.

⁵ Farber at column 3, lines 55-61.

⁶ Hoole at column 7, lines 23-27.

⁷ Hoole at column 8, lines 46-51.

contrast to modulating a signal into a unified transmission form as claimed. Hoole, therefore, fails to teach or suggest that a signal is modulated by a modulating part into a unified transmission form for transmission by an optical or wireless part, as recited in amended Claim 1.

Further, Hoole fails to teach or suggest a switching part, which is part of the control or base station, configured to switch an output destination of the unified signal according to a sending destination of the signal. The Official Action appears to equate the claimed switching apparatus with Hoole's asynchronous transfer mode (ATM) switch (162). However, the ATM switch (162) is not part of the base station or control station, as recited in amended Claim 1. Additionally, the ATM switch (162) fails to include a modulation part configured to modulate a first signal into a second signal of a unified transmission form.

Claim 1 also recites a switching station receiving side including a wireless signal receiving part configured to receive a third signal via wireless circuit and a demodulation part configured to demodulate said third signal. Hoole fails to teach or suggest a switching station in a receiving side, as recited in amended Claim 1.

As admitted in the Official Action, Hoole fails to teach or suggest the use of an optical signal transmission part or an optical signal receiving part, as recited in amended Claim 1. In an effort to cure the deficiencies cited in Hoole, the Official Action relies on Farber.

Applicants respectfully traverse the obviousness rejection based on Hoole and Farber because there is insufficient evidence for motivation to modify Hoole's method of improving spread spectrum signal characteristics by incorporating Farber's method of extending cellular communication service by creating microcells, for the following reasons.⁸ The outstanding

⁸ See M.P.E.P. § 2143.01 stating "[o]bviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art," (citations omitted). See also § 2144.08(iii) stating that "explicit findings on motivation

Official Action states that the proposed modification would have been obvious “to improve coverage in a wireless communication system.”⁹ The record, however, fails to provide the required evidence of motivation for a person of ordinary skill in the art to perform such modification. While Farber may provide a reason for using fiber optics to extend the reach of a cellular network, Farber fails to teach or suggest why a person of ordinary skill in the art would be motivated to incorporate such a feature in a method for optimizing spread spectrum transmission techniques such as the one disclosed by Hoole. In particular, Farber uses fiber optics in order to create micro-cells in an enclosed building, as depicted in Figure 1. Farber, however, does not suggest that implementing fiber optics to expand the reach of the cellular network would assist in optimizing spread spectrum signal transmission techniques in any way. Farber fails to state that a spread spectrum transmission infrastructure such as that described by Hoole requires an optical circuit or an optical transmission means in order to improve Hoole’s system.

In addition, Hoole is not concerned with improving coverage in a wireless network by creating microcells in the building, as described by Farber. Hoole states that a structure already achieves the goal using distinct spectral and spatial analysis of received signals combined in a unified operation to extract each user signal in a highly bandwidth-efficient multiple access system.¹⁰ Hoole does not suggest that further improvement is desired, nor that another feature should be added to improve the wireless coverage of the system. In particular, Hoole does not suggest to add fiber optic lines to create microcells in building environments, such as those disclosed in Farber. Hoole and Farber, therefore, do not provide the motivation to perform the proposed modification of Hoole’s device. In other words, an attempt to bring the isolated teachings of Farber’s system into Hoole’s device would amount

or suggestion to select the claimed invention should also be articulated in order to support a 35 U.S.C. § 103 ground of rejection... conclusory statements of similarity or motivation, without any articulated rationale or evidentiary support, do not constitute sufficient factual findings.”

⁹ The Official Action at page 3, line 25 through page 4, line 3.

¹⁰ Hoole at column 7, lines 18-27.

to improperly picking and choosing features from different references without regard to the teachings of the references as a whole.¹¹ While the required evidence and motivation to combine need not come from the applied references themselves, the evidence must come from *somewhere* within the record.¹² In this case, record fails to support the proposed modification of Hoole's system.

In rejection a claim under 35 U.S.C. § 103(a), the USPTO must support its rejection by "substantial evidence" within the record, and by "clear and particular" evidence of the suggestion, teaching, or motivation to combine the teachings of different references. As discussed above, there is no substantial evidence, nor clear and particular evidence, within the record of motivation for modifying Hoole's device by incorporating Farber's device. Without such motivation and absent improper hindsight reconstruction,¹³ a person of ordinary skill in the art would not be motivated to perform the proposed modification, and Claims 1-21 are believed to be non-obvious and patentable over the applied prior art.

Accordingly, Applicant respectfully requests the rejection of Claim 1 under 35 U.S.C. § 103 be withdrawn. For substantially the same reasons as given with respect to amended Claim 1, it is also submitted that Claims 11 and 15 patentably define over Hoole and/or Farber. As Claims 2-10, 12-14 and 16-21 depend from Claims 1, 11 and 15 accordingly, it is also submitted that these claims patentably define over the prior art of record.

¹¹ See In re Ehrreich, 590 F.2d 902, 200 USPQ 504 (CCPA 1979) (stating that patentability must be addressed "in terms of what would have been obvious to one of ordinary skill in the art at the time the invention was made in view of the sum of all the relevant teachings in the art, not in view of first one and then another of the isolated teachings in the art," and that one "must consider the entirety of the disclosure made by the references, and avoid combining them indiscriminately.")

¹² In re Lee, 277 F.3d 1338, 1343-4, 61 USPQ2d 1430 (Fed. Cir. 2002) ("the factual inquiry whether to combine references... must be based on objective evidence of record.... The factual question of motivation cannot be resolved on subjective belief and unknown authority.... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but it must also explain the reasoning by which the findings are deemed to support the agencies conclusion").

¹³ See M.P.E.P. § 2141, stating, as one of the tenants of patent law applying to 35 U.S.C. § 103, that "the references must be viewed without the benefit of impermissible hindsight vision of afforded by the claimed invention."

Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-21 is patentably distinguishing over the prior art. The present application is therefore believed to be in condition for a formal allowance and an early and favorable reconsideration of the application is therefore requested.

Respectfully submitted,

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